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Hunting as Conservation in the United States – Sustaining Suitable Habitat

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In aggregating the increasing information being collected on the value of goods and services that natural and semi-natural ecosystems provide, de Groot, Wilson, and Boumans attempted to create a standardized view to assess the economic valuation of ecosystem functions (2002). One of the ecosystem functions mentioned in their system is the Nursery function, which is associated with the process of reproducing suitable habitats (de Groot et al, 2002). The authors list the hunting of game, fishing, and the gathering of fruits and vegetation as examples of goods and services that play a role in fulfilling this function of nature (2002). This paper aims to analyze how hunting can help to fulfill this function, both in an economic and ecological sense. The exact question at hand is this – what role does hunting play in the conservation, sustainability, and protection of animal populations and habitat in the United States? We will focus on roughly the previous 100 years, from the early 1900s to the present. This paper will be organized into two sections. The first will explore the research question, examining potential reasonable answers based on general data, economic theory, and historical developments. The second will discuss the research question through the lens of the Veblenian Dichotomy, while analyzing how this tool could be useful in such research.

Hunting has a long tradition in American culture, taking place on the North American continent well before the arrival of European settlers. Generations of Native Americans hunted a multitude of species for survival, hundreds of years before notions of sustainable use would be necessary and well before the founding of the United States. The tradition remains strong today, with 11.5 million Americans participating in hunting in 2016 according to the U.S. Department of the Interior ("New 5-Year Report...", 2017). These hunters have a not-insignificant impact on the economy as well, spending an estimated $25.6 billion in that same year – which was actually a decrease from the $36.3 billion spent in 2011 ("New 5-Year Report...", 2017). For the purposes of ecological sustainability, however, what matters is not hunter numbers or the consumption habits of these hunters – or at least, not these facts in and of themselves. Rather, what is more important in determining the impact of hunting on the environment is the behavior and attitudes of these hunters, along with the causes that their expenditures support.

The intersection of modern hunting and the ecological goals of sustainable habitats and populations was borne out of the early 1900s. To this point, few laws were in place to protect wildlife or natural resources. As a result, usage was unregulated; several species were hunted to extinction (such as the passenger pigeon) or very near to it, including white-tailed deer, wild turkeys, and perhaps most famously, bison (U.S.F.W, 2018). This unchecked and unconstrained behavior began to provoke questions about sustainability, and in response, the North American Model of Wildlife Conservation took shape. This model is based on a set of seven features, or principles, and has served as the basis for the legal framework that has developed regarding hunting and conservation issues.

The following is an overview of the principles, as stated by the U.S. Fish and Wildlife Services (2018).

1. **Wildlife is a public resource.** In the Unites States, wildlife is considered a public resource, independent of the land or water where wildlife may live. Government at various levels have a role in managing that resource on behalf of all citizens and to ensure the long-term sustainability of wildlife populations.
    - From an economic perspective, this principle is important because it assigns property rights. Wildlife and the associated resources belong to the citizens of the United States collectively, and thus we have a direct incentive for responsible use. Rules for use are promulgated by Government, the arm of expression and enforcement for collective decisions.
2. **Markets for game are eliminated** Before wildlife protection laws were enacted, commercial operations decimated populations of many species. Making it illegal to buy and sell meat and parts of game and nongame species removed a huge threat to the survival of those species. A market in furbearers continues as a highly regulated activity, often to manage invasive wildlife.
    - This principle forbids the creation of markets for wildlife meat, removing the ability to overhunt animal populations in the pursuit of profit. This is particularly interesting in an economic context, as it is a partial rejection of the idea that markets always serve as the most efficient allocation method.
3. **Allocation of wildlife by law.** Wildlife is a public resource managed by government. As a result, access to wildlife for hunting is through legal mechanisms such as set hunting seasons, bag limits, license requirements, etc.
    - This principle sets a precedent that governments will establish specific restrictions on the hunting of American wildlife, including explicit bag limits and competency requirements. This principle, in tandem with the aforementioned property rights, provides a direct protection against a classic "tragedy of the commons" scenario.
4. **Wildlife can only be killed for a legitimate purpose.** Wildlife is a shared resource that must not be wasted. The law prohibits killing wildlife for frivolous reasons.
    - This could be interpreted as a way to codify an assumption of classic economic models. These models hold that individuals make decisions rationally, seeking to maximize their utility in the face of various constraints. By making it the case that wildlife cannot be taken for "frivolous" purposes, a legal hedge is created against irrational behavior.
5. **Wildlife species are considered an international resource.** Some species, such as migratory birds, cross national boundaries. Treaties such as the Migratory Bird Treaty and CITES recognize a shared responsibility to manage these species across national boundaries.
    - This is an extension of the earlier property rights principle that helps account for the fact that wildlife do not abide by man-made national borders. Thus, conservation may need to be a matter of international cooperation.
6. **Science is the proper tool for discharge of wildlife policy.** In order to manage wildlife as a shared resource fairly, objectively, and knowledgeably, decisions must be based on

sound science such as annual waterfowl population surveys and the work of professional wildlife biologists.
    - By basing wildlife policies on sound science, another classic economic assumption is fulfilled – complete information. Having access to the most accurate and up-to-date information puts society in position to make better decisions regarding environmental and wildlife policies.
7. **The democracy of hunting.** In keeping with democratic principles, government allocates access to wildlife without regard for wealth, prestige, or land ownership.
    - This provides a basis for the ownership of public land for hunting, an issue which will be described in greater detail later in the paper.

This model provides the groundwork for the system of regulation, taxation, and environmental protection efforts concerning hunting and conservation that arose throughout the twentieth century. The legislative and regulatory actions to come were based precisely on the principles listed, with the aim of meeting the applicable goals of the model. Some of the more prominent pieces of legislation that tie hunting, economics, and conservation together are those concerned with the funding of government environmental protection efforts. Perhaps the most well-known of these is the Federal Aid in Wildlife Restoration Act, more commonly referred to as the "Pittman-Robertson Act" in honor of Nevada Senator Key Pittman and Virginia Congressman Absalom Willis Robertson, the bill's sponsors. As quoted directly from the US Fish and Wildlife Service, the Pittman-Robertson Act states that:

> *Funds from an 11 percent excise tax on sporting arms and ammunition are appropriated to the Secretary of the Interior and apportioned to States on a formula basis for paying up to 75 percent of the cost approved projects. Project activities include acquisition and improvement of wildlife habitat, introduction of wildlife into suitable habitat, research into wildlife problems, surveys and inventories of wildlife problems, acquisition and development of access facilities for public use, and hunter education programs, including*

construction and operation of public target ranges. ("Digest of Feder Resource Laws of Interest to U.S. Fish and Wildlife Service")

The original bill was passed on September 2, 1937, marking one of the earliest substantial changes to environmental conservation policy; at least, in terms of those policies concerned with the management of wild game and their habitats. In a concrete sense, what this bill provided was government enforcement and support of habitat preservation and wildlife management, as well as a specific system by which to fund these management efforts. In a less tangible, but perhaps more important sense, it planted the seeds of a conservation ethic in the hunting community. Pittman-Robertson effectively established the idea that those who most partake in and enjoy the United States' rich wildlife resources have a unique responsibility to take care of it. It is here that the economic and social aspect begin to intertwine. The taxation portion of Pittman-Robertson is based on the principle of "user pays" – that is, the user of a resource is responsible for the financial burden of its use. This closely aligns with the concept of property rights. Many economic models, particularly those in the neoclassical tradition, rely heavily on the idea of strong property rights. Assigning property rights gives a clear delineation of responsibility and provides individuals with incentives to guide their behavior. Frankly speaking, if an individual economic agent has ownership of an item, then they are more inclined to take care of it. Such is the essential logic of typical microeconomic principles. But beyond the textbook modeling, there is an impact on social attitudes. While this piece of legislation alone may not be solely responsible for starting the idea of hunting as conservation, it certainly popularized the idea in the public consciousness. This bill established the idea that hunters have a prominent role and responsibility to play in protecting wildlife and habitats, and over time this idea became more and more instilled in the culture of the hunting community. This idea will be touched on again in

this paper. Thus, it becomes clear how the ecological, economic, and social sides of habitat sustainability connect. The scope of the Pittman-Robertson bill has changed over time, often reflecting changes in preferences and practices among those who hunt and fish. A further revision was passed in 1970, expanding the list of firearms the act applied to:

> *Public Law 91-503, approved October 23, 1970, (84 Stat. 1097) added provisions for the deposit of the 10 percent tax on pistols and revolvers, one-half of which may be used by the States for hunter safety programs. This amendment also provided for development of comprehensive fish and wildlife management plans as an optional means for participating in the program, and changed the maximum limit from $10,000 to one-half percent for Puerto Rico and to one-sixth percent for the Virgin Islands and Guam. ("Digest of Feder Resource Laws of Interest to U.S. Fish and Wildlife Service")*

Further provisions were added in the following decades to expand the tax to bows, crossbows, their parts and accessories, and arrows ("Digest of Feder Resource Laws of Interest to U.S. Fish and Wildlife Service"). Given the fairly broad reach of the tax, it follows that the funding raised for wildlife programs would be significant.

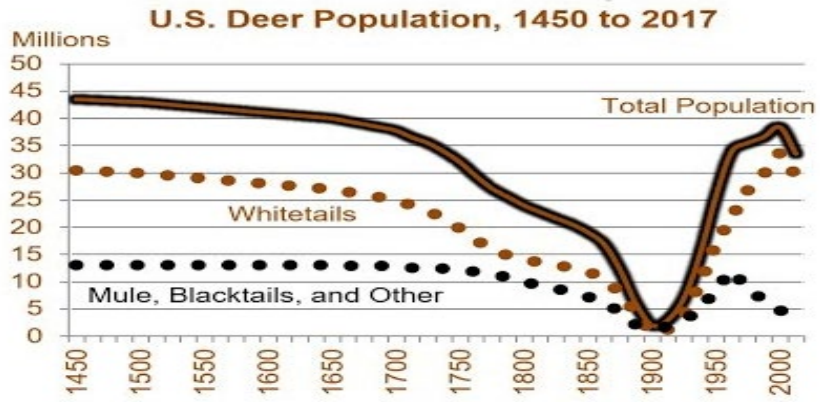
Revenues collected from the Pittman-Robertson tax are, as mentioned before, allocated to various uses. According to a report from the Congressional Research Service, congress apportions the money to five areas: administration expenses, basic hunter education and safety programs, enhanced hunter education and safety programs, multistate conservation grants, and finally, wildlife restoration (Crafton, 2019). Though hunter education and safety are tangentially related, for the purpose of this paper the important area of funding is wildlife restoration. This is actually the largest funding stream within Pittman-Robertson, with apportionments averaging $606 million between fiscal years 2015 and 2019 (Crafton, 2019). According to the CRS, this

area comprises 81% of the total funds that are disbursed through Pittman-Robertson (Crafton, 2019). This represents a significant source of support for projects and products aimed at protecting, restoring, and maintaining habitats in every state in America.

Another notable program tying hunting to environmental concerns is the Federal Duck Stamp program, formally titled the Migratory Bird Hunting Stamp Act ("History of the Federal Duck Stamp, 2017). This program was also introduced during the FDR administration, much like Pittman-Robertson. The act mandates that all waterfowl hunters age 16 and over must annually purchase and carry a Migratory Bird Hunting and Conservation Stamp, referred to as a Federal Duck Stamp in common parlance ("History of the Federal Duck Stamp, 2017). Following the model of "user pays" for conservation, funds from duck stamp purchases are used to purchase or lease wetlands and habitat to be included in the National Wildlife Refuge System ("History of the Federal Duck Stamp, 2017). According to the US Fish and Wildlife Services, ninety-eight cents of every duck stamp dollar goes to fund these efforts, with that money being used to protect nearly 6 million acres of habitat since the inception of the program ("History of the Federal Duck Stamp, 2017). This provides a concrete sense of the impact that these programs can have.

Now that the mechanics of modern, legislation-driven conservation practices have been established, a key question arises – have these programs actually been successful? In answering this question, it is important to bear in mind that this is not an econometric analysis. This paper aims to pose a research question (what role does hunting play in the conservation, sustainability, and protection of animal populations and habitat in the United States?), provide some general analysis using historical data (and the Veblenian dichotomy, which will be discussed later), and provide a basis upon which to pursue further, more statistically-based research. Given this, it is important to use caution when making statements about causality within this paper. However,

several historical data trends point to a strong correlation between changes in hunting practices and regulations and improved outcomes for American wildlife.



The above figure represents historical population trends for white-tailed deer on the American continent over a broad window of time. Whitetails are of interest because they are commonly acknowledged as the most popular game animal for hunters in America today. What the graph shows is indicative of the earlier story. Whitetail numbers experienced a steady, dramatic decline from the beginning of European colonization through the next century and a half. By the early 1900s, whitetails (along with two other major North American deer species, mule deer and blacktails) were on the verge of outright extinction. This nadir, however, was short-lived. In the next 100 years, the rebound in whitetail population was so dramatic that the population had fully recovered, even matching pre-colonial levels. The fact that this unprecedented recovery coincides with the timing of major reforms in government game management policies is no coincidence. This data appears to lend credence to the general argument made here. It would seem that, as the North American Model of Wildlife Conservation was implemented, the new policies put in place proved successful in protecting the environment and restoring game animal populations. It is quite likely that Pittman-Robertson and The Federal

Duck stamp act were major players in these successes. However, the direct regulatory impact may not tell the entire story.

The sheer act of hunting in North America contributes to the protection and conservation of wildlife regardless of whether or not an individual hunter actually desires to achieve those goals. This is a sheer fact of the system's setup – simply by participating in required hunter education courses, purchasing necessary gear, and acquiring a hunting license, sportsmen are contributing money to the preservation and protection of wildlife and the environment. The setup of the Pittman-Robertson excise tax and various state-level policies ensure that some level of conservation efforts will be funded by hunters whether or not hunters genuinely care about the issue. However, where these policies can really generate results is the area of social attitudes. When hunters and outdoorsmen have a sense of responsibility for protecting wild areas, conservation regulations become even more effective. A simple quote helps to illustrate this idea. "It's not ours, it's just our turn" has become the mantra for a man named Doug Duren, and nicely encapsulates the point that will be made here. Mr. Duren is a conservationist and hunter, widely known for his appearances on the *MeatEater* hunting show and his efforts on the issue of chronic wasting disease in his home state of Wisconsin. He has become a popular advocate for sound scientific research on the subject along with best practices to help prevent the spread of the disease. His mantra describes the idea that the natural world does not belong to any one person – or even any particular generation. Rather, it belongs to all of us, and we thus have a collective incentive and responsibility to care for it. We get the pleasure of enjoying it in our lifetime, but the responsibility that we owe to both future generations and the natural world itself mandates that the wild is not ours to do with and deplete as we please. When this type of attitude interacts with a sound set of wildlife management practices, conservation is in effect turbocharged. This

type of responsible ecological concern would make hunters more likely to engage in conservation activity above and beyond the automatic participation previously noted. Evidence that this attitude does exist among the hunting community is shown through the existence of organizations such as the Theodore Roosevelt Conservation Partnership, a nonprofit group that promotes conservation of habitat and wildlife through hunting and fishing ("Our Mission: Theodore Roosevelt Conservation Partnership". It is quite reasonable to assume that the most substantial successes of wildlife and habitat preservation (such as the aforementioned recovery of white-tailed deer populations) have only been possible due to a combination of both informed policy and a culture of responsibility among the broad hunting community. These ecological improvements have been possible because outdoorsmen and women believe the wild is not theirs – it is merely their turn. Herein lies the nexus of the social, economic, and ecological aspects of habitat sustainability.

The economic connection to the previous discussion becomes apparent when considering neoclassical microeconomic models. As previously hinted at, these models are based on the idea that individuals make decisions rationally, and through their rational economic behavior, markets achieve equilibrium. In terms of this paper, it seems more than plausible that the invocation of the North American Model of Wildlife Conservation and its associated policies has helped to drive social attitudes – and therefore individual preferences. What this means in an economic sense is that, by cultivating a sense of responsibility to take care of the environment, wildlife management policy has driven hunters to care more about the conservation of the animals and lands they enjoy. Because of these adjusted preferences, hunters may be more likely to engage in behavior or support policies that promote conservation of the environment. Individual preferences have been harnessed to promote an ecological and social good. This is the key point

of pursuing this line of research – economic principles have adjusted social behavior and driven a change to the ecological world. This fact, in conjunction with the data shown here which appears to support the general hypothesis of hunting being a means of conservation, show how this research question could prove a fruitful line of inquiry in the field of Ecological Economics.

Part II – The Veblenian Dichotomy as an analytical tool

The Veblenian Dichotomy is an important tool of analysis primarily used in the school of institutional economics. Named for its creator, Thorstein Veblen, the dichotomy marks one of the most popular and influential concepts of both Veblen's career contributions and Institutional School of economic thought as a whole. In a general sense, what the tool allows is a way to think about and analyze the social and practical functions of a good, technology, or behavior. In his paper on the evolution of the Veblenian Dichotomy over time, William Waller provided a reasonable explanation as to what the dichotomy describes. Waller stated that the dichotomy is a way to distinguish between "institutions and technology"; more specifically, and more relevant to the discussion to follow here, the dichotomy is used to examine the difference between the "ceremonial" and "instrumental" functions of a particular good, behavior, or social attitude (1982). Ceremonial aspects are deswhcribed as something that "…reinforces status and is past-binding", whereas instrumental refers to something "… aimed at getting things done, trying new activities and new approaches, and at evaluating them in terms of their consequences. It is fact oriented" (Dugger, 1995). In more laymen's terms, ceremonial processes refer to the things we do or things we value for social, cultural reasons, whether this be focused on tradition, status, or some other kind of social reason. Instrumental processes are less abstract, being focused on the actual actions we take to accomplish something. It is a more concrete concept, focused not on the

socially-weighted value judgements we make but on the actual outcomes of an action or use of an item. Simply put, humans behave the way they do for a variety of reasons, and this dichotomy allows us to separate those reasons into two broad categories for more meaningful analysis. With this in mind, one can imagine how such a lens could certainly be applied to our research question. Hunting has practical outcomes, both environmentally and with respect to animal populations. People partake in the activity for a wide variety of reasons, be they practical, social, cultural, or otherwise. We can therefore apply the idea of the Veblenian dichotomy to the research question formulated in this paper; this will be the purpose of the ensuing section of the paper.

One way to begin a Veblenian analysis on the role of hunting in conservation is to break down the various functions that the activity has in society. A paper from Fischer, et al, from 2013 (entitled *On the Multifunctionality of Hunting – an Institutional Analysis of Eight Cases from Europe and Africa*) does exactly this. Though this paper examines countries that are outside the scope of the research question of this paper, the same lines of argument can be brought into a United States-specific context. Some discussion is devoted to the economic function of hunting, with multiple examples. For instance, in Scotland, red deer hunting is a commercially run operation, providing stable employment for gamekeepers and stalkers in rural areas in particular need of such opportunities (Fischer et al, 2013). Additionally, game meat is a source of reasonable value for sale on the market (Fischer et al, 2013). While hunting does serve an economic function in America, it is fair to note that this occurs in a different fashion. As previously noted, the sale of game meat is explicitly disallowed in America. Further, hunting access is not controlled by commercial means – both of these institutional arrangements are clearly inconsistent with the North American Model of Wildlife Conservation. However, it is

true that hunting serves an economic function – via the purchases of equipment and sales of licensure previously discussed. Commercial hunting does exist, and does technically serve this function – though it is reasonable to assume that no rational evaluator would consider it a significant sector of the economy. Serving an economic function in this manner is clearly an instrumental process. Particularly in commercial hunting and gear sales, the goal is monetary – the maximization of profits. In turn, ecological functions are supported, but industries related to hunting gear production and commercial hunts are no different from other industries in their profit motive. In that sense, the instrumental nature of these industries becomes clear, because social or cultural pressures can be tossed aside if they inhibit the success of the business. This is not the central instrumental process present in the American hunting community, but is impactful enough to merit some brief attention here.

Similar to the previous section, the Fischer paper focuses some study on the ecological function of hunting. One of the key takeaways is that, in the European nations studied, hunting is a key part of biodiversity management (Fischer et al, 2013). Fischer et al noted that, in Scotland and Sweden specifically, red deer and moose are managed with the goal of maintaining populations for the purposes of hunting and other land use objectives, such as forest regeneration for conservation and commercial forestry purposes (2013). These management strategies closely resemble the strategies employed in America, as noted in the previous discussion. As a tool of habitat preservation, these management strategies are an example of an instrumental process of hunting with regard to ecological preservation. As the North American Model of Wildlife Conservation shows, management strategies are developed with the direct input of wildlife biologists. This ensures that the regulations promulgated will reflect the findings of current scientific research, which in turn helps to make sure that hunting practices align with the goals of

habitat and game conservation. This ecological function of hunting is therefore fact-based – it is concerned with what *is*, and is aimed at providing an unbiased view of reality. Game population numbers are what they are, and no amount of tradition or social-status driven influence is going to change that. For this reason, the most successful hunting regulations are designed by heavily incorporating biological science. There are balances to be struck, as is evident by the example of the dual land uses of hunting and commercial forestry, but this further illustrates the instrumental nature of forming effective hunting regulations and policies (2013). To be effective, or to in economic terms "maximize" utility, analysis of these tradeoffs must be based on accurate data an unbiased decision-making. But in striking these balances, results are what matter – not social or cultural expectations. This is why the game management strategies in America prove themselves to be instrumental processes. They are an aspect of hunting that is not supposed to be tied to tradition; the purpose is to be as scientific and objective as possible in pursuit of better outcomes for wildlife and their habitats.

Certainly, the ceremonial aspect is a strong presence in hunting as well. Largely, it is present in the social and cultural reasons for why and how individuals choose to engage in hunting and the outdoors. One of the primary ceremonial aspects of hunting is its inherent past-binding nature. Archaeological evidence suggests that human beings (and their hominid relative) have been hunting and gathering for roughly 2.5 million years, meaning that hunting has been integral to human societies for the greater portion of our evolutionary history (Arnett and Southwick, 2015). This being the case, it follows that hunting has been a common thread linking various stages of human evolutionary development. In some sense, then, participating in this kind of activity is an essential part of what it means to be human – it is something we have evolved to do. The ceremonial is present in this evolutionary sense, but a social element exists in

the context of the history of modern societies as well. Arnett and Southwick describe the social connections that exist in the modern hunting community, which centers on cultivating relationships and the passing of knowledge through generations:

> *Hunters seek and enjoy social relationships and interactions inherent to the activity of hunting, connecting with one another at profound levels and carrying on traditions in social and cultural relationships with family, friends and community. Hunting traditions are often passed down within families; older generations deliberately teach skills to younger generations preparing them for either subsistence and/or recreational hunting purposes. In addition, individuals often seek out friendships with other hunters; thus, hunting promotes social cohesion within families and across extended social networks and generations (2015).*

This illustrates how tradition runs strong in hunting, not just in the evolutionary sense but in the social as well. One can experience this firsthand, albeit anecdotally, in conversation with hunters. A great number will point out how they were introduced to the outdoors by a parent, grandparent, or close friend, and the carrying on of the hunting tradition is an important element of the relationship between the two people. The presence of these past-binding, social-status building factors demonstrate a quintessential ceremonial process in the American outdoor tradition. A final ceremonial process that has become more prevalent in recent years relates to the ultimate result of hunting for most individuals – the harvesting of meat. For some this relates to a preference for healthier meat, while for others it is essential to their subsistence (Arnett and Southwick, 2015). Among those in the former category, there exists a sub-group for whom hunting provides a more ethical way to obtain meat than via the factory farming by which a large amount of meat available at grocers is provided. In the case of these individuals, there is a desire

to be more connected to the source of their food which is satiated by, in a sense, participating in the food chain. For some, this can come from a desire to avoid participating in livestock farming processes that they deem to be unethical. This demonstrates how hunting participation can be linked to values tied to social-status, further demonstrating a clear ceremonial process.

Conclusion

It is clear from the discussion here that the relationship between hunting and the environment provides rich ground for research and analysis. Through the development of the North American model of wildlife conservation, a strong connected has been forged between the economic, ecological, and social functions that hunting can serve. In some cases, the interconnectedness runs so deep that it is difficult to determine precisely where one function ends and another begins. In any case, it is clear the relationship is strong. Through license sales alone, hunters have provided a prodigious boost to the funding of projects that support and protect habitats and wildlife populations across the nation. Furthermore, this regulatory setup has cultivated a sense of responsibility in the hunting community itself. Many hunters understand and deeply value their role in conservation, and some go above and beyond their baseline impact of licensure sales money and responsible hunting practices by joining organizations or participating in efforts to protect, support, and improve habitats and the state of wildlife in America. The Veblenian Dichotomy provides a powerful tool for linking this analysis back to an institutional economic perspective. Instrumental and ceremonial processes interact to align both the social and scientific sides of hunting with environmental and ecological support and stability. The last 100 years of wildlife and habitat improvement give evidence that hunting plays a significant role in promoting and supporting sustainable habitats and wildlife populations.

Though the success stories of the last 100 years are numerous, it is important to note that these positive outcomes will not continue by sheer force of inertia alone. Perhaps Mr. Duren's mantra – "It's not ours, it's just our turn" – is the most precise way to summarize the direction that hunters and regulators should pursue in order to ensure another 100 years of further conservation successes.

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"It's not ours, it's just our turn" quote originated by Mr. Doug Duren, used with permission.